SOFTWARE RELEASE BULLETIN

CIP V 8

L688/L688A

Control Data Corporation recommends that this Software Release Bulletin be read in its entirety prior to any CIP installation.

SMD800371

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Introduction to CIP

The CYBER Initialization Package (CIP) consists of hardware/software interface modules. The modules are released on tape and must be installed to disk for system operation. This CIP release supports CYBER 170/180 models 810, 815, 825, 830, 835, 840, 845, 850, 855, 860, 870, 990, and 995. The CIP module levels are listed in the table below:

NOTE: Please consult your Field Change Announcement (FCA) sheet to verify that the hardware is at the appropriate level prior the installation of CIP V8 L688 / L688A.

Release Levels

Module	Level				
CTI	688	DSKA	02	TAPA	01
MSL	688	DSKB	02	TAPB	02
EDD	688	DSKC	02	TAPC	01
DFT	93	DSKD	02	TAPD	01
EI	19	DSKE	02	TAPE	02
MDD	13	DSKF	02		
SCI	02	DSKG	01		
SCD	05	DSKH	02		
VCB	01	DSKI	03		
VPB	01	DSKJ	01		
SSR	01	DSKK	01		

Structure of CIP Tape

File 1 CIP Deadstart file.

File 2 CTITEXT.

File 3 CTI for operating system, CIP 700 only. Empty if not CIP 700.

File 4 NOS peripheral microcode.

File 5 NOS/BE peripheral microcode.

File 6 Procedure to install peripheral microcode into the NOS/BE operating system.

File 7 Seldom-used and unsupported diagnostics that can be loaded at the option of the site maintenance personnel. Instructions for copying file 7 to a tape for installation are contained in appendix C.

File 8 Previously released NOS/VE modules used to build a new CIP tape for backlevel support.

CIP Support

Any problem with CIP should be reported on a PSR specifying the nature of the problem. Please include the CIP type, version and level number on each PSR (e.g., CIP 830 V8 L688).

Microcode problems should be reported on TARs. To communicate verbally, contact Customer Service Support: 1-800-345-9903 for the United States and Canada and 1-612-851-4131 for international customers.

Occasionally, defective CIP tapes are received in the field. The usual problem is the inability to read the tape. If you determine that you have such a problem, there is a form, "THE SOFTWARE MANUFACTURING AND DISTRIBUTION CRITIQUE LETTER", that accompanies each CIP tape sent to the field. To reorder replacement CIP tapes, fill out the form with the type of problem you encountered, your return mailing address and the type of tape you require (e.g., CIP 830 V8 L688). Return the form and defective tape to Software Manufacturing and Distribution (SMD). SMD will ship a replacement tape as soon as possible.

Replacement tapes can also be ordered by phone, 1-612-482-3747. No matter how you order a replacement CIP tape, SMD has requested the return of all defective CIP tapes accompanied with the form. Problems not related to media (i.e., software bugs) should be reported via a PSR.

Changes for this Release

Dump / Restore ESM

It is now possible to set a default parameter block flag to indicate whether or not the operator is prompted for dumping ESM when performing an EDD dump on a CYBER 180 machine. Default parameter block values are set by selecting the 'D' option on the Utilities display. This flag replaces the use of bit 8 of word 13 in the deadstart panel. By default, the flag is not set and no ESM prompt is issued. The low speed port channel used for dumping can also be set in the default parameter block. This channel is displayed and can be changed as part of the ESM prompt sequence during the EDD dump. Since the default parameter block must be present to cause the ESM prompt sequence to be issued, it is not possible to deadstart from tape and perform an EDD dump that includes dumping ESM via the low speed port; dumping ESM via the CPU port on a CYBER 170 is unaffected by this change.

The restore CM option has been enhanced to allow restoring of ESM from the EDD dump tape. This option is selected by choosing 'R' on the Operator Intervention display. Three possible choices are then available: restore CM only, restore ESM only, or restore both. In order to restore CM only or both, a level 3 deadstart must be selected. ESM can be restored on any non-zero zevel deadstart. The 'R' option is available only on CYBER 180 machines.

This feature is intended to allow preserving the contents of ESM across a level 1 deadstart, where test or maintenance activities have caused the contents of ESM to be lost. After doing the CHECK POINT SYSTEM command, an EDD dump is taken to save the contents of ESM on tape. When deadstarting to resume system activity, a level 1 is selected, then the Restore ESM option, which causes the contents of ESM to be restored from the EDD tape.

Diagnostic Features

DPDI4

The new diagnostic DPDI4 is an IPI data path integrity test for the CM-3 disk subsystem. It is designed to test the data path between the IOU, central memory and the CM-3 disk subsystem. It also executes the CM-3 and drive in-line diagnostics as well as formatting the drive.

IPI4

The new diagnostic IPI4 is a DMA enhanced IPI channel adapter test for the I4. It is designed to test all the logic elements within the DMA enhanced IPI channel adapter. In addition, IPI4 tests basic data paths between central memory and the central memory interface in the CIO subsystem. The IPI adapter is defined as the logic elements interfacing the CIO PP to the IPI channel and the IPI channel to central memory.

HYDR

The new diagnostic HYDR is the data path integrity test for the I4 DMA enhanced ISI data channel to the 887 disk subsystem.

CMSE

Modification to CMSE to load peripheral microcode from the common disk area. With this modification to the CW command, CMSE loads the peripheral microcode from the common disk area on the CIP disk.

Modifications to CMSE and the CYBER 990/995 diagnostics to support auto scope loop. The auto scope loop is documented in the MSL153/MSL155 Test Procedures Reference Manual, publication number 60461110, revision D.

CYBER 990/995 Diagnostics

For CYBER 990/995 mainframes, two CIP levels are being released: CIP V8 L688 and CIP V8 L688A.

The CIP 990 V8 L688 diagnostics ACT5, BPT5, CMT5, EPT5, FPT5, IDT5, IFT5, IGT5, LST5, MAT5, MIT5, MST5, OCT5, SCT5, and VAT5 support a CYBER 990/995 without instruction retry FCOs CA48546, CA48547, CA48565 and CA48566.

The CIP 990 V8 L688A diagnostics ACT5, BPT5, CMT5, EPT5, FPT5, IDT5, IFT5, IGT5, LST5, MAT5, MIT5, MST5, OCT5, SCT5, and VAT5 support a CYBER 990/995 with hardware instruction retry FCOs CA48546, CA48547, CA48565, and CA48566.

EDD

The Express Deadstart Dump (EDD) Utility has been enhanced to dump out the DFT/OS buffer, the EI portion of memory, the MPS and JPS exchange packages in memory, and the dual state buffer (EICB block) as separate records on the dump file.

This is in conjuntion with NOS/VE 1.2.3 feature enhancements to the NOS/VE Analyze_Dump Utility, which now has the capability to analyze an EDD dump tape without reading in the entire central memory record to disk (set_processing_options=hardware on the Analyze_Dump command).

DFT

The Dedicated Fault Tolerance (DFT) module has the following modifications:

- The corrected central memory error threshold was changed from 32 to 8.
- Added the 6xx series error codes for internal error processing, enhanced error detection and reporting for maintenance channel errors.
- On the CYBER 990/995, support added for instruction retry, improvement in the error analysis of processor halt conditions, and changes to interlock the model dependent buffer. The buffer is no longer overwritten unless a higher priority error has occurred. All errors with information being recorded to the buffer have a priority of 1, unless the error is an issue timeout, which has a higher priority of 2.

Mainframe Microcode

990/995

CIP 990/995 V8 L688 contains mainframe microcode V19 with the features as follows:

- Change to disable conditional issue for all stores.
- Corrected timing problem with BP3 AUX board.
- Corrected two ACU functions.

CIP 990/995 V8 L688A contains mainframe microcode V20 which requires the instruction retry FCOs CA48546, CA48547, CA48565 and CA48566, with the following features:

- o Change to disable conditional issue for all stores.
- o Corrected timing problem with BP3 AUX board.
- o Corrected two ACU functions.
- o Changes were installed in retry and EPN soft control to support hardware upgrades.
- o Changes were installed in the ERROR HALT routine for improved diagnostic evaluation.

Peripheral Microcode

MA721 FMD/844

Peripheral microcode MA721 Version D12 for FMD/844 was revised as follows:

- o Address error recovery has been improved for recoverable errors on large sector reads. This would previously result in a data skew.

Installation

CIP Installation

A. An extra copy of the CIP SRB and the Field Change Announcements has been provided in the CIP field kit. One copy is for the customer and the other copy is for Engineering Services.

B. CIP V8 L688/L688A supports the following systems:

NOS	2.5.3 L688
	2.5.2 L678/L670
	2.5.1 L670
	2.5.1 L664/L650
NOS/BE	1.5 L664
NOS/VE	1.2.3 L688
(dual state)	1.2.2 L678 (Reference H for instructions)
	1.2.1 L670 (Reference H for instructions)
	1.2.1 L664 (Reference H for instructions)
NOS/VE	1.2.3 L688
(standalone)	1.2.2 L678 (Reference H for instructions)
	1.2.1 L670 (Reference H for instructions)
	1.2.1 L664 (Reference H for instructions)

C. Installation of CIP V8 L688 vs L688A

CIP V8 L688A is required only for CYBER 180-990/995 mainframes with FCOs CA48546, CA48547, CA48565, and CA48566 installed. Use CIP V8 L688 for all other mainframes.

D. If CIP V6 L664/L670 or CIP V7 L678 was previously installed, the update option may be used to install CIP V8 L688 and permanent files do not require dumping and reloading.

If a CIP prior to CIP V6 L664 is installed on the disk CIP is being installed to, then the initial installation option must be used for CIP installation. Permanent files, if they reside on the CIP disk, must be dumped before CIP V8 installation and reloaded after CIP V8 installation. If the update option is used for installation to a disk that contains a CIP prior to V6, the error message "UNABLE TO PERFORM -UPDATE- INSTALL. COMMON DISK AREA NOT INITIALIZED" is issued by CTI.

E. Do not install CIP on a disk when another system is using the disk. Initialization of disks using CIP should be accomplished when CIP has sole access to the disk to avoid conflicts with operating system access and also to avoid possible file corruption.

F. In dual state, the CIP device must be defined to the host operating system (NOS or NOS/BE). It must either be defined in the NOS/VE configuration as OFF or must be omitted from the NOS/VE configuration; the former is preferable. A device which is OFF is not used by NOS/VE unless it is a CIP device and then only for DFT access.

In NOS/VE standalone, the CIP device must be ON if it's a NOS/VE device otherwise it must be OFF.

Therefore, if you want to alternate between dual state and standalone, the same PHYSICAL_CONFIGURATION and configuration prolog can be used for both, but only if the device containing CIP is defined in the NOS/VE physical configuration as OFF.

G. If you deadstart NOS/BE on a dual CPU CYBER 870 or 995, you receive a false "(218) FATAL CPU1 ERROR" in the CERFILE which is also displayed on the NOS/VE console when that system is deadstarted. This error message does not prevent NOS/VE from using the CPU, thus the message can be ignored. To avoid having the error message appear at all, obtain NBOE611 from SOLVER and install it in your NOS/BE system.

H. Installation of CIP V8 L688 Releases

Control Data Corporation recommends that all sites upgrade to CIP V8 L688/L688A. The following information describes operating system considerations and procedures for making the upgrade.

CIP and Operating System Compatibility

CIP V8 L688/L688A may be installed as released if your site is running the following operating system release levels.

- o NOS/VE 1.2.3 L688
- o any NOS level listed in item B
- o any NOS/BE level listed in item B

CIP V8 L688/L688A must be modified if it is to be used with NOS/VE 1.2.1 L664 or L670 or NOS/VE 1.2.2 L678. A procedure is provided below which describes how to modify the CIP tape for use with these NOS/VE levels.

Instructions for modification of CIP V8 L688/L688A for NOS/VE 1.2.1 L664, L670, or NOS/VE 1.2.2 L678.

Modification of CIP is required to ensure that the NOS/VE components on the CIP match the PSR level of the customer's NOS/VE system. The following materials are needed to create a modified CIP tape.

- o CIP V8 L688/L688A, as released
- o NOS/VE 1.2.3 L688 BASE_3 release tape (only if running VE L664 or L670)
- o scratch tape on which to write the new CIP

Perform the following steps to create a new CIP tape.

1. Log in to your current NOS/VE system (level 664, 670 or 678) on any user name.
2. If you are running NOS/VE 1.2.1 L664 or L670, load the file RAF$CIP_SUPPORT_LIBRARY from the NOS/VE 1.2.3 L688 BASE_3 tape:

```
REQUEST_MAGNETIC_TAPE F=$LOCAL.TAPE EVSN='NVE005' R=FALSE
RESTORE_PERMANENT_FILE L=$OUTPUT
RESTORE_FILE f=$FNAME($BACKUP_FILE($LOCAL.TAPE,IDENTIFIER)..
//'.RAF$CIP_SUPPORT_LIBRARY') BF=$LOCAL.TAPE..
 NFN=$USER.RAF$CIP_SUPPORT_LIBRARY
QUIT
DETACH_FILE $LOCAL.TAPE
```

3. Add the library to your command list:

   a. If you are running NOS/VE 1.2.1 L664 or L670:

```
ATTACH_FILE F=$USER.RAF$CIP_SUPPORT_LIBRARY
SET_COMMAND_LIST A=$LOCAL.RAF$CIP_SUPPORT_LIBRARY
```

   b. If you are running NOS/VE 1.2.2 L678:

```
SET_COMMAND_LIST A=$SYSTEM.OSF$BUILTIN_LIBRARY
```

4. Execute MODIFY_CIP_TAPE to create the modified CIP tape:

```
MODCT L=level IVSN='relcp8' OVSN='newcp8' T=MT9$1600
```

   where level is an integer specifying your current NOS/VE level, either 664, 670, or 678.
   relcp8 is the VSN of the released CIP V8 L688/L688A tape. This must be the released tape. No other tape can be used.
   newcp8 is the VSN for the modified CIP V8 tape.

   The procedure first requests and reads the released CIP tape, unloads it, then requests and writes the modified CIP tape.

5. Install/upgrade the CIP disk via the modified CIP V8 tape using normal installation procedures.

   NOTE: Be sure to keep the released CIP tape for use when upgrading to NOS/VE 1.2.3 L688. Also, the modified CIP tape that is created cannot be used as input to the MODIFY_CIP_TAPE procedure.

   On the NOS/VE 1.2.3 L688 system, the MODIFY_CIP_TAPE procedure is contained in the library $SYSTEM.OSF$BUILTIN_LIBRARY. It can be executed by adding the library $SYSTEM.OSF$BUILTIN_LIBRARY to your command list.

I. CIP considerations for upgrading NOS/VE to L688

When your site upgrades to NOS/VE 1.2.3 L688 from L664, L670, or L678, the customer may need to alternate between the two NOS/VE levels while testing the L688 system before entering it into production. To eliminate the need to reinstall the entire matching CIP each time, see the following steps. These steps extract the VE boot modules which match the NOS/VE system level you want to switch to and installs them onto the CIP disk. The steps must be repeated immediately before each deadstart of a NOS/VE system that is at a different release level than the NOS/VE system most recently executed on that mainframe.

1. Deadstart from the CIP V8 tape that has a level number which matches the level of NOS/VE that will be deadstarted and executed next (e.g., If NOS/VE 1.2.1 L664 is to be executed, deadstart from the modified CIP V8 tape containing the replaced NOS/VE L664 modules. If NOS/VE 1.2.3 L688 is to be executed next, deadstart from the released CIP V8 L688 tape.)

2. Select the B (build deadstart disk) option.

3. Select the M (manual operations) option.

4. Select the D (replace mainframe microcode, EI, SCD, MDD, DFT or default device parameters) option.

5. Select the Z (initialize common disk area) option.

These steps also initialize the following information on the CIP disk device:

- The Mainframe Reconfiguration Table (MRT), which identifies the logical state of all mainframe elements. Any of these elements previously defined as logically OFF must be redesignated as such. Also, depending on the type of mainframe, you may be prompted to enter the date/time at the next deadstart.

- The NOS/VE deadstart boot display selections (deadstart device and system device channel, unit number, etc.). This information must be re-entered when the deadstart boot display appears.

- The Deadstart Error Log (DEL), a facility used by CTI to record mainframe error information present at deadstart.

Peripheral Microcode Installation

Certified levels of peripheral microcode are distributed on CIP. If problems are discovered with peripheral microcode, an FCO will be distributed containing the corrected peripheral microcode and installation instructions for NOS, NOS/BE, NOS/VE, and CIP.

New levels of peripheral microcode distributed via CIP can be extracted and placed on the operating system deadstart tape. Acquiring the peripheral microcode from the CIP tape for installation onto the operating system is an operation separate from CIP installation. NOS peripheral microcode is contained on file 4 of the CIP tape, NOS/BE peripheral microcode on file 5 and file 6 is a procedure to aid in the installation of peripheral microcode into the NOS/BE operating system. The following descriptions show how to install the peripheral microcode onto the operating system deadstart tape. The NOS/VE operating system obtains peripheral microcode from the CIP common disk area and does not require that the deadstart tape be modified.

NOS Sites

NOS sites must update the old operating system deadstart tape if it is NOS 2.5.2 L678/L670 or older. The following procedure installs peripheral microcode onto an operating system tape.

1. Deadstart NOS.

2. Mount the CIP V8 tape.

3. Enter at system console under DIS or from an interactive terminal:

```
REQUEST,CIP,VSN=CIP,D=PE,F=SI,LB=KU,PO=RF,NT.
SKIPF,CIP,3.
COPYBF,CIP,LGO.
RETURN,CIP.
COMMON,SYSTEM.
NOTE,USERD.+*I,PPU/FIRM66X,MB467          (If NOS 2.5.1 L664/L650)
PACK,USERD.                               (If NOS 2.5.1 L664/L650)
SYSGEN,DST,SYSTEM,LGO,NEW,USERD,density.  where density is the density
                                          of the new deadstart tape
                                          (e.g., PE, GE)
```

   These steps create a new deadstart tape containing the new peripheral microcode. The new tape is requested with a VSN of NDT. It should be assigned with the "VSN,est,NDT." command from the system console, where est is the EST ordinal of the tape drive where the new CIP tape is to be written.

4. Install CIP V8 L688 using the procedure in the CYBER Initialization Package (CIP) User's Handbook, publication number 60457180, revision G.

5. Perform a level 0 (zero) NOS deadstart with the new tape.

NOS/BE Sites

To incorporate the latest peripheral microcode from the CIP V8 L688 tape onto NOS/BE 1.5 L664, follow the steps below:

1. Deadstart NOS/BE.

2. Mount the CIP V8 tape.

3. Enter at system console:

```
n.DIS.
REQUEST,CIP,VSN=CIP,NT,PE,NORING.
SKIPF,CIP,5,17.
BEGIN,,CIP.
```

   When this procedure terminates, all peripheral microcode used by NOS/BE is CATALOGed with ID=CWARE. The deadstart tape must now be rebuilt using the appropriate NOS/BE build job (DST1 or DST3) as described in in the NOS/BE Installation Handbook.

4. Install CIP V8 L688 using the procedure in the CYBER Initialization Package (CIP) User's Handbook, publication number 60457180, revision G.

5. Deadstart NOS/BE with the new tape.

NOS/BE UEM Installations

The space allocated for CTI handoff is needed for NOS/BE to adjust the amount of UEM available. The central memory available for NOS/BE to use at CTI handoff is calculated in the following manner:

*AVAIL central memory = Logical central memory - (central memory used for page tables + central memory used for EI + central memory used for EI buffer)

*Note: This value is forced to a page boundary.

- Logical central memory is usually equal to physical central memory size unless the operator has degraded the central memory size via OIP (Operator Intervention Program); CTI would then use the degraded central memory size.

- Central memory used for page tables is calculated using the following formula:

  (MS/PS) * PTE where:

  MS = logical central memory (central memory words)
  PS = 8K page size = 2000B central memory words/page
  PTE = page table entries/page = 1 central memory word/page

  Example:

  MS = 32MB = 20000000B central memory words
  PS = 2000B central memory words
  PTE = 1 central memory word/page

  central memory used for page tables = 20000000B/2000B words * 1
  central memory used for page tables = 10000B central memory words

- Central memory used for CIP is calculated by forcing the correct length of CIP buffer to the next page size boundary. This length is currently one page = 2000B central memory words.

- Central memory used for the CIP buffer is calculated by adding the following values (central memory words):

```
Length of  SCI
   "   "   SCD
   "   "  +MDD
   "   "  +DFT
   "   "  +VPB
   "   "  +CFT
   "   "  +EFT
   "   "  +2AP
   "   "  +2A1
   "   "    +1    zero word terminator
Total = 32000B central memory used for CIP buffer.
```

Note: On a CYBER 990/995 system, the lengths of all microcode required to initialize the system is added to the total central memory used. For a single CPU CYBER 990, the total is 76000B central memory words = 37B pages. For a dual CPU CYBER 995 models 40 and 41, the total would be 142000B = 61B pages, if one CPU is a model 40 and the other is a model 41.

Currently, the central memory used for the CIP buffer on non-CYBER 990/995 systems is 15B pages = 32000B central memory words.

Therefore, at CIP time, the available central memory for a 32MB non-CYBER 990/995 system would equal:

available central memory = 20000000B - (10000B + 2000B + 32000B)
available central memory = 17734000B central memory words

For a CYBER 990 single CPU with 32 MB of CM:

available central memory = 20000000B - (10000B + 2000B + 76000B)
available central memory = 17670000B central memory words

For a CYBER 995 dual CPU model 40 and model 41 with 32 MB of CM:

available central memory = 20000000B - (10000B + 2000B + 142000B)
available central memory = 17624000B central memory words

General Notes / Cautions

A. It is recommended that only one CIP operating system deadstart device per mainframe be used, due to the retention of configuration information of the mainframe between deadstarts by CTI on the deadstart disk. It is not recommended to have two mainframes share a common CIP device.

B. Beginning with CIP V7, clearing the MRT forces a memory initialization by CTI. This was necessary because with CM RELOAD, CTI no longer writes CM (EI and the CIP directory) on recovery deadstarts. This requires that the FWA of the CIP buffer be maintained in the MRT. A messaage is displayed when the "H" option under Utilities is selected informing the user of the consequences of clearing the MRT.

C. The NOS/VE deadstart process in standalone mode is very sensitive to the contents of central memory. If the contents of memory are not as NOS/VE left them from a previous standalone deadstart (or not as CTI initialize mainframe left them), then the NOS/VE deadstart hangs in the PP boot and no message is displayed to indicate the hang. Use the initialize mainframe option on the utilities display after changing memory or page size or maintenance activities to avoid such hangs.

D. After any mainframe hardware reconfiguration, the Mainframe Reconfiguration Table (MRT) must be cleared prior to any operating system load. The steps required to clear the MRT are as follows:

1. Deadstart from CTI disk.

2. At the CTI initial options display, enter a 'U' (Utilities).

3. At the Utilities display, enter an 'H' (clear the mainframe reconfiguration table). The following message is displayed:

```
CLEARING THE MRT WILL CAUSE THE
FOLLOWING ITEMS ON THE NEXT
DEADSTART,

ALL MAINFRAME MEMORIES WILL
BE INITIALIZED FOR OS LOADS.

CM RELOAD FROM EDD TAPE OPTION
WILL NOT BE AVAILABLE.

(CR) TO CONTINUE
```

The MRT has now been cleared and all previous reconfiguration entries have been deleted. These include all the items specified in the CYBER Initialization Package (CIP) User's Handbook, Publication 60457180, revision G.

E. When displaying memory using MDD with a hexadecimal address that begins with the hex digits AD, the user must enter the parameter name. For example, to display the contents of byte AD(16), enter the command DB AD=AD.

F. LDS (Long Deadstart) must be run before CTI power-on initialization can execute. Running LDS ensures good parity in location 7777B of all PPs. On a CYBER 170-815/825, LDS fails with status summary errors on the first run after a power-on. A second execution clears the errors.

G. MDD mode of SCI is designed to allow an analyst to observe the condition of a mainframe before NOS/VE begins its initialization routines. For SCI to begin the deadstart of NOS/VE, the user should press the F7 key on a CC634B terminal. If a terminal other than a CC634B is used, the operator should enter an RS (RECORD SEPARATOR = 1E hexadecimal) and a lower case "w". This is true regardless of the origin port of the deadstart or the port that MDD is to drive.

MSL Notes/Cautions

A. Users should read the MSL15X Reference Manual publication number 60456530, before attempting to use MSL products on the CIP release.

B. Microfiche program listings of CTI, microcode, SCI, SCD, MDD, DFT, and EI are available at the discretion of the District Technical Operational Support (TOS) managers or the Country Central Office.

C. CMSE reserves certain channels, including the channels numbered identical to those of the monitor PP, the display driver PP, and the PP communications channel. These are defined by initial CMSE display items 6 and 7. These channels and PPs may be redefined before proceeding with the loading of CMSE to allow diagnostics to run on peripheral equipment connected to them.

D. Some MSL15X diagnostics use channels to communicate between PPs. If one of these diagnostics is loaded into PP 10, CMSE hangs.

E. Caution must be exercised if command buffers that call CONFIG are changed. CONFIG modifies command buffers by fixed line numbers.

F. Deleting DEMOT's OUTPUT files (*DP,fn command) or any other file it creates without a 77 table (such as the flaw map from FMU), results in the error message "PRFX TABLE MISMATCH" appearing in the keyboard area error/message line. Although the file was deleted and the error message can be cleared with no need to retry the command, the disk space used by such a file is not released by CMSE. If a SRT FULL situation is encountered, CIP requires reinstallation using the Update installation options.

G. The memory tests generally do not execute properly if CMSE is using central memory for communication.

H. The KC command fails when bringing up CMSE from tape after an initial power-on. The problem occurs on a CYBER 170-815/825, CYBER 180-810/830 and CYBER 810A/830A. Upon power-up, certain procedures discussed below must be executed before central memory reads and writes can be guaranteed to work. Since CMSE does not perform these procedures, but attempts to use central memory if central memory communication is turned on, it hangs on a central memory read or write instruction.

After a power-up, a clean up of the state of the machine must be done before any central memory reads or writes are executed. A sequence of CMSE commands that clean up the mainframe enough to allow central memory reads/writes after a power-up is:

```
CX,M        master clear CMC
CE,I        clear IOU errors
CE,M        clear memory errors
ER,M,20,0   clear memory environment control register
ER,M,21,0   clear memory bounds register
```

Another possibility is to use the U-I-M path (U = Utilities, I = Initialize mainframe, M = load Maintenance) in CTI if the deadstart is from disk, in which case CTI performs the equivalent of the above commands before CMSE is even brought into execution.

Initial installation of a system is likely to require deadstarting from tape (the disks are not working yet) and entering the above commands.

I. If the 834/836 disk subsystem is down on a CYBER 170-815/825 or CYBER 810A/830A and you are forced to execute from tape, it is recommended that the program DPDS be used to isolate the failures. Functionally, DPDS is identical to the DEMOT programs FSD and DTI. The advantage of using DPDS is the amount of time required to load and execute.

J. On a CYBER 170/180-845/855, the diagnostic RFST2 fails when run in CPU 0, until field change order CA46111, which corrects the hardware for RFST to run, is installed.

K. On a CYBER 990/995, the diagnostics ACT5-VAT5 released with CIP V6 L670 were changed to use the signal MAC Halt as a synchronization point for scoping problems. A corresponding hardware change has been made via FCO CA48361 (timing change) to make the signal available on a test point. The synchronization point designation is 2C2G04-5.

L. On a CYBER 990/995 with model 40 central memory, the diagnostic MIT5 fails in section 10 if FCO CA48361 (timing change) is not installed.

M. With the CIP V8 L688 release, a separate command buffer sequence is used to NUMR and EDIT on CYBER 840/845/850/855/860/870. This sequence is called MIGDS3A. Execution of NUMR and EDIT can be removed from MIGDS3A by deleting the single statement "RJ,MIGDS3C".

N. Some intermittent failures have been seen with the diagnostic MIT5 in section 10 subsection 18. The determination of the failure is currently under investigation.

O. If CIP is installed on a shared device, diagnostics are being executed with the error stop parameter turned off and the log error to CMSE dayfile parameter is turned on and the diagnostic fails, it is possible that CMSE could overflow the reserved dayfile area on the disk. If this error occurs, the Program Name Table (PNT) would be partially or completely destroyed. The PNT is used by CMSE when loading programs from disk.

The frequency of this happening depends on how many programs were installed on the CIP device from MSL, the size of the programs (this varies by mainframe type), the number of errors encountered and written to the dayfile, and how often the dayfile is cleared.

The indication that this has happened varies depending on how much of the PNT was destroyed. The two most likely indications that this error has occurred are:

- o CMSE issues a message indicating that a program can't be found on the disk.
- o CTI issues a message indicating that a program can't be found on the disk when attempting to deadstart.

It is recommended that the CMSE dayfile be cleared periodically to avoid the possibility of this problem occurring.

P. Command buffers RFST3S and RFST3SB (840-870 models) have been added with the CIP V8 L688 release. These command buffers run RFST without PIT and SIT interrupts.

Q. A problem currently exists where NOS/VE may destroy CIP when CIP is installed to the 844 disk and subsequently used as the CIP device by NOS/VE. This problem will be corrected when a determination has been made.

R. To run the I4 (CIO) PP based diagnostics, central memory has to be enabled at the initial CMSE display by entering 8.3 (parameter change). If you are not familar with the running of CIO PP based diagnostics on an I4 IOU (CIO), the diagnostics will not run with out CM enabled. Examples of some diagnostics affected are:

- o CCA4 - 170 DMA (CIO) channels
- o ISI4 - Intelligent Subsystem Interface (ISI) channels
- o IPI4 - Intelligent Peripheral Interface (IPI) channels
- o HYDR - DMA enhanced ISI channel adapter to 887 disk test
- o UHYD - ISI channel off-line monitor of 887 disk in-line test
- o DEMOT diagnostics (CIO)

Note: The 170 DMA IOU diagnostic CCA4 leaves the CIO IOU in a state that is unusable by the DEMOT diagnostics. A deadstart followed by a U-I-M sequence corrects the problem.

S. A dual CPU version of CMEM was released on CIP V6 L664 which requires a minimum of 4 megabytes to operate correctly. Any 810/810A/815/825 830/830A system which has only 2 megabytes of memory or is degraded to the same level is affected. The command buffer which loads and executes CMEM hangs up after the binary is loaded and while the binary is being expanded prior to execution. Expansion of the binary is accomplished by a PP program BEU which is called from the CMEM command buffer. Because of the limited space in central memory, BEU is unable to complete the expansion and the SQ command is seen waiting at the keyboard entry line line of the CMSE display. No error message is displayed.

Modification of CMEM will be provided on the next CIP release to correct the problem. Please note that CMEM is called into execution by the command buffer VERIFY which sequences several tests. The following changes to command buffer INSL1 allows VERIFY to run without CMEM:

1. Execute the command "AE,INSL1,42". The command buffer is displayed commencing at line 42 octal. The first ten lines displayed should be as follows:

```
RJ,CMEM1A
CST
SP
DN
DN
SP
SP
SQ,H,50004,1,16
HK
CF
```

2. Execute the command "DE,42" repeatedly until all ten of these lines are deleted.

3. Execute the command "*DB,INSL1" to delete the original INSL1 command buffer.

4. Execute the command "*WB" to save the modified version of INSL1.

T. RFST and other virtual level tests have a repeat count as one of the possible parameters. When this repeat count is exhausted, the test stops. The default value for RFST is 1000 passes. This can be changed with the command EC,14C21,xxx where xxx is the desired count in hexidecimal. The maximum value for xxx is 7FFF FFFF FFFF FFFF. If this is put into a command buffer such as RFST3, the command must follow the SQ,0,77,1,/, WAIT UNTIL EXPAND COMPLETE command. If the test is to execute on the second CPU of a dual CPU system, the command must be EC,14E21,xxx. On the CYBER 990/995 the command buffers for RFST already have the commands in them.

U. On a CYBER 990/995 with 895 disk as the CIP device the diagnostic FCT5 fails with the message PROGRAM ERR. The problem is documented with PSR MSLA786. To work around the problem, after CIP installation, perform the following steps:

1. Deadstart from the CIP disk.
2. Enter M to initiate MSL.
3. At the CMSE parameter options display enter TDX(cr).
4. Enter -CR- to continue.
5. Enter CIP disk channel and unit.
6. Enter tape type, channel, equipment, and unit that the CIP tape is mounted on.
7. Enter C to add programs to disk.
8. Enter Y to select duplicate name check.
9. Enter Y to replace duplicate names.
10. Enter F502 for the COPY FROM message.
11. Enter F502 for the COPY THRU message.
12. When the binary program has been placed on the MSL disk the display returns to the TDX OPTIONS DISPLAY.
13. The program F502 has been correctly replaced on the MSL library.

Appendix A

Mainframe/Peripheral Microcode and FCA Index Levels

Mainframe Microcode Versions

Mainframe System Type	Microcode Version	Mainframe System Type	Microcode Version
CYBER 180-810/830	14	CYBER 810A/830A	14
CYBER 170-815/825	14	CYBER 840A	08
CYBER 170/180-835	15	CYBER 850A	11
CYBER 180-840	08	CYBER 860A	10
CYBER 170/180-845	10	CYBER 870A	10
CYBER 180-850	11	CYBER 990E/995E	19/20*
CYBER 170/180-855	09		
CYBER 180-860	10		
CYBER 180-990	19/20*		

* CIP 990 V8 L688 contains Version 19.
  CIP 990 V8 L688A contains Version 20.

Peripheral Microcode Versions

These are the versions of peripheral microcode furnished on the CIP tape and the current versions with which CIP was tested.

	Name	Version	Description
	MA401	08	844FT peripheral microcode
	MA454	04	FSC Disk peripheral microcode
	MA462	05	ISD Adapter peripheral microcode
	MA464	08	895 Disk peripheral microcode
	MA466	02	5870 NIP peripheral microcode
	MA710	13	844HT peripheral microcode
*	MA721	12	885/FMD peripheral microcode
	MA722	03	885/FMD DEMA Disk peripheral microcode
	MB401	03	FSC Tape peripheral microcode
	MB434	14	66X peripheral microcode
	MB465/CW63X	03	639 ISMT Control Module peripheral microcode
**	MB466	01	MASSTOR peripheral microcode
	MB467	01	698 CMTS Tape peripheral microcode
	MD422	07	834 Diagnostics
	MD424	03	836 Diagnostics
	MH422	07	834 COS
	MH424	03	836 COS
***	MH426	07	CM-3 peripheral microcode

* changed on this CIP release.
** pre-release copy sent with CIP V7 L678 was corrected.
*** new on this CIP release.

Field Change Announcement (FCA) Index Levels

FCA plug and play index levels are documented on the FCA sheet distributed with CIP.

Appendix B

PSR List

The following PSRs have been corrected since CIP V7 L678 and are included in this release:

CIPA098 CIPA099 CIPA104 CIPA106 CIPA107

CIP0085 CIP0104 CIP0110

CTIA380 CTIA420 CTIA421 CTIA422 CTIA423 CTIA424 CTIA425 CTIA426
CTIA430 CTIA431 CTIA432 CTIA435 CTIA436 CTIA437 CTIA439 CTIA444

CTI0175

DFTA051 DFTA052 DFTA053 DFTA056 DFTA057 DFTA060 DFTA064

DFT0012 DFT0013

ICAA078 ICAA080 ICAA081 ICAA082 ICAA083

MSLA478 MSLA637 MSLA669 MSLA690 MSLA715 MSLA717 MSLA718 MSLA719
MSLA720 MSLA721 MSLA723 MSLA725 MSLA726 MSLA727 MSLA728 MSLA731
MSLA732 MSLA733 MSLA734 MSLA735 MSLA739 MSLA745 MSLA749 MSLA753
MSLA754 MSLA755 MSLA760 MSLA761 MSLA762 MSLA764 MSLA766 MSLA769
MSLA771 MSLA776 MSLA478

MSL0531

MSMA307 MSMA416 MSMA420 MSMA424 MSMA430 MSMA435 MSMA436 MSMA437
MSMA440 MSMA443 MSMA444 MSMA446 MSMA454

Appendix C

File 7 Installation Instructions

Contents

File 7 on all CIP tapes with MSL contains the following programs:

```
FFU01-FFU99A
FLM00-FLM99C
FSM00-FSM99A
F4401-F4499A
F7X00-F7X99A
F8801-F8899A
BCX-9X6
MY8-9VJ
MY9-9VT
LDC-9V5
MTC-9UP
S2C-8JU
SCX
CID-7AZ
MYP-9VX
TASE065       CYBER 170/180-845/855 and CYBER 840/840A thru 870/870A only
TIVE065       CYBER 170/180-845/855 and CYBER 840/840A thru 870/870A only
PAGE065       CYBER 170/180-845/855 and CYBER 840/840A thru 870/870A only
STAT065       CYBER 170/180-845/855 and CYBER 840/840A thru 870/870A only
```

Installation Instructions

To copy file 7 to another tape for installation by TDX, reference the NOS or NOS/BE instructions below.

NOS Instructions

```
JOB.
USER,user,pw,family.
CHARGE,charge,project.
REQUEST,CIP,VSN=CIP,NT,PE,F=SI,LB=KU,PO=R.
REQUEST,COPY,VSN=COPY,NT,PE,F=SI,LB=KU,PO=W.
SKIPF,CIP,6.
COPYBF,CIP,COPY.
```

NOS/BE Instructions

```
JOB/account
REQUEST,CIP,VSN=CIP,NT,PE,NORING.
REQUEST,COPY,VSN=COPY,NT,PE,RING.
SKIPF,CIP,6,17.
COPYBF,CIP,COPY.
```

Refer to the MSL15X Reference Manual for a description of TDX.

CIP V8 L688 Quality Survey

Please complete this survey and mail it to:

Control Data Corporation
Attention: CIP Release Manager, ARH245
4201 Lexington Avenue North
Arden Hills, Minnesota 55126

1. System type

___810/810A/815/825/830/830A
___835
___840/840A/845/850/850A/855/860/860A/870/870A
___865/875
___990/995

2. What do you feel is the overall quality of CIP?

____Excellent
____Good
____Acceptable
____Marginal
____Poor

3. What area on CIP has quality been a problem for your site? (indicate all)

____Common Test and Initialization (CTI)
____Express Deadstart Dump (EDD)
____Off-line Maintenance Software Library MSL)
____Mainframe Microcode
____Peripheral Microcode
____CIP Manuals
____CIP Software Release Bulletin (SRB)
____None
____Other _____

4. Who initially installs CIP at your site?

____Analyst
____Operator
____Customer Engineer
____Other _____

5. Who installs the CIP used during production at your site?

____Analyst
____Operator
____Customer Engineer
____Other _____

6. How often is CIP re-installed after initial installation at your site?

_____more than 1/week
_____1/week
_____1/month
_____1/6 months
_____never

7. What was the previous level of CIP installed?

____L004
____L005
____V6 L664
____V6 L670/L670A
____V7 L678/L678A
____Other _____

8. How long from receiving the CIP V8 release to the actual installation do you expect?

_____within 2 Weeks
_____within 1 month
_____within 1 Year
_____Never

9. Current Operating system level installed?

____NOS Level _____
____NOS/BE Level _____
____NOS/VE Level _____
____Other _____

10. Who reads the CIP Software Release Bulletin at your site? (indicate all)

____Analyst
____Operator
____Customer Engineer
____Other _____

11. Has your site generated PSRs on CIP during the last year?

____Yes
____No

12. Have you received prompt responses to PSRs on CIP?

____Yes
____No

13. Is the Hardware Verfication Sequencer used by your site?

____Every Deadstart
____Occasionally
____Seldom
____Never

14. If it was deleted as an option would that be a major impact to your site?

____Yes
____No

15. Is the Mainframe Field Change Announcement (FCA) delivered with CIP used by your site?

____Yes
____No

16. Is the Software Field Change Announcement (FCA) delivered with the operating system used by your site?

____Yes
____No

17. Indicate the peripheral equipment at your site and if the corresponding peripheral Field Change Announcements (FCAs) delivered to Customer Engineering is used.

Equipment	Used	
____	____	255x CDCNET
____	____	639 Tape
____	____	698 Tape
____	____	7990 Mass Storage System
____	____	834 Disk
____	____	836 Disk
____	____	895 Disk
____	____	CYBERPLUS

18. Do you have any suggestions on how to improve the overall usefulness of the CIP product? _____

19. Do you have any suggestions on how to improve the quality of the CIP product? _____

20. Comments? _____

The following questions are to be completed by Customer Engineering only.

1. Indicate all areas that maintenance software on CIP has been a quality problem for your site?

   ____Off-line maintenance system (CMSE)
   ____Microfiche
   ____Diagnostics
   ____Diagnostic Command Buffers
   ____Manuals
   ____CIP Software Release Bulletin
   ____None

2. Is the microfiche delivered with CIP used by your site?

   ____Yes
   ____No

3. Is the microfiche received by your site stored for later usage?

   ____Yes
   ____No

4. Did you have any problems obtaining the CIP materials now that CIP is being delivered with the operating system material?

   ____Yes
   ____No

5. Is the Mainframe Field Change Announcement (FCA) delivered with CIP used by your site?

   ____Yes
   ____No

6. Is the Software Field Change Announcement (FCA) delivered with the operating system used by your site?

   ____Yes
   ____No

7. Indicate the peripheral equipment at your site and if the corresponding peripheral Field Change Announcements (FCAs) delivered to Customer Engineering is used.

Equipment	Used	
____	____	255x CDCNET
____	____	639 Tape
____	____	698 Tape
____	____	7990 Mass Storage System
____	____	834 Disk
____	____	836 Disk
____	____	895 Disk
____	____	CYBERPLUS

Thank you for your participation in the survey.